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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,404	07/03/2003	David F. Kronholm	286638.121US2	7464
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WILMER CUTLER PICKERING HALE AND DORR LLP 60 STATE STREET BOSTON, MA 02109			MCCRACKEN, DANIEL	
		ART UNIT	PAPER NUMBER	
				1754

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/614,404	KRONHOLM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Daniel C. McCracken	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 9/18/2006.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-122 is/are pending in the application.
- 4a) Of the above claim(s) 1-50 and 94-121 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 51-93 and 122 is/are rejected.
- 7) Claim(s) 87,88 and 90 is/are objected to.
- 8) Claim(s) 1-121 are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

Citation to the Specification will be in the following format (S. #, ¶) where # denotes the page number and ¶ denotes the paragraph number. Citation to patent literature will be in the form (Inventor #, LL) where # is the column number and LL is the line number.

### ***Related Cases***

It is noted that the instant application is related to PCT/US2003/021301. The search report was not provided by Applicants, and is hereby requested.

### ***Election/Restrictions***

Applicant's election with traverse of Species B in the reply filed on 9/14/2006 is acknowledged. The traversal is on the ground(s) that Species B is not excluded from claim 1, indicative of Species A. This is not found persuasive for reasons of record.

The requirement is still deemed proper and is therefore made FINAL. Claims 51-93 (Group B) will be examined.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "270" has been used to designate both a gas inlet and a sampling point. *Compare* (S. 31, 21) *with* (S. 41, 11). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

Art Unit: 1754

accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “900” has been used to designate both an “inline process” and apparently, the entire process as shown in Figure 9. *See* (S. 32, 16-17) and “Figure 9.” Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

Claims 87, 88, and 90 are objected to because of the following informalities: They depend on a nonelected claim. Appropriate correction is required.

#### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Art Unit: 1754

*Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 51, 91, and 122 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,985,232 to Howard, et al.

With respect to claims 51 and 91, they do not explicitly recite collecting the condensables at a post-flame location as required by Claim 1 of Howard '232. However, the use of the term "effluent" in claims 51 and 91 indicates that the gas being treated is collected at a post-flame location. Similarly, all rejected claims do not recite the limitation of the size of fullerene generated (i.e. C<sub>n</sub>, where n ≥ 100), but Howard '232 discloses that lower carbon fullerenes have been synthesized in flames. See (Howard '232 2, 4-6) (citing Howard et al., *Nature* 352, 139-141 (Jul. 11, 1991)). Thus, it would have been obvious to one of ordinary skill in the art that a range of fullerenes can be produced via combustion techniques. All rejected claims recite gas/solid separation processes while Claim 1 of Howard '232 recites "separating the fullerene nanostructures from the soot." Howard '232 does describe gas/solid separation techniques. See (Howard '232 7, 62-65). A person of ordinary skill in the art would recognize that a variety of separation techniques, including gas/solid separation techniques, could be used.

Claim 122 is drawn to generating a gas stream comprising condensable gases and suspended soot particles followed by separating the condensable gases. Claim 122 does not specify how the gas stream is generated. Howard '232 discloses means for generating a gas

Art Unit: 1754

stream comprising soot and condensables (i.e. combustion). The preceding discussion of Claims 51 and 91 related to separations is relied upon for teaching all other limitations and differences over the instant application.

In summary, with respect to the rejected claims, a person of ordinary skill in the art would recognize that a combustion process described in Claim 1 of Howard '232 could produce fullerenes containing fewer than 100 atoms. Further, one of ordinary skill in the art would appreciate that numerous separation techniques could be utilized in the method of Howard '232. Finally, as to Claim 122, a person of ordinary skill in the art would appreciate that Claim 1 of Howard '232 describes generating a gas stream containing soot and fullerenes, which could in turn be separated.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 54-56, 89 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The analysis for determining whether a claim is supported by the disclosure is cast in terms of whether "undue experimentation" is necessary to practice the invention. *See MPEP 2164.01.* In examining the claims in light of the supporting disclosure, the Federal Circuit has provided a non-exclusive list of factors to consider in determining whether a disclosure is

Art Unit: 1754

enabling. *See generally In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

These factors include:

- a. The breadth of the claims;
- b. The nature of the invention;
- c. The state of the prior art;
- d. The level of one of ordinary skill;
- e. The level of predictability in the art;
- f. The amount of direction provided by the inventor;
- g. The existence of working examples; and
- h. The quantity of experimentation needed to make or use the invention based on the content of the disclosure

*Id.* “Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations.” *Id.* Examiner has considered all factors in light of all claims rejected makes the following findings of fact:

a. The breadth of the claims

Both Claim 54 and 55 are drafted broadly, with Claim 54 reciting “optimal fullerene stability,” and Claim 55 limiting Claim 54 by requiring that consumption of fullerenes by soot particles or other species. As to Claim 56, Applicants limit Claim 55 on the basis of a time scale ratio. As to Claim 89, Applicants recite a reaction between polycyclic aromatic hydrocarbons and soot particles.

b. The nature of the invention

The invention as a whole is drawn to a method for producing fullerenes and separating them. Claims 54 and 55 are both describing either a chemical reaction between species or an adsorption process. Claim 56 recites the time of a separation relative to a chemical reaction. Claim 89 recites the reaction of polycyclic aromatic hydrocarbons with soot particles.

c. The state of the prior art and the level of one of ordinary skill

It would seem reasonable to assume that the references provided by Applicants as well as those cited by Examiner are indicative of the level of ordinary skill in the art.

d. The level of predictability in the art

With the large number of variables, e.g. pressure, temperature, species, flame type (laminar or turbulent), there is a significant level of unpredictability in the art, owing to the fact that the fullerenes sought to be produced are produced in a flame and are in some state of equilibrium with soot particles both within the flame and within the effluent gas.

e. The amount of direction provided by the inventor

Page 17 of Applicants' specification is cited as relevant as showing the direction provided with respect to Claims 54-56. At two locations, Applicants recite "other" process conditions necessary to control the process. *See* (S. 17, 3) (describing "[t]emperature and other process conditions") (emphasis added) *and* (S. 17, 18-19) (while gas velocity is recited, the language would indicate that other variables are contemplated and not disclosed.) Applicants' also place some emphasis on the time scale of the separation relative to the consumption or embedding of fullerenes onto soot, yet provide no discussion of how to measure this embedding of the fullerenes onto soot molecules.

In general, applicants are claiming the ability to control chemical reactions (e.g. maximizing a species as in Claim 55) or controlling mass transfer phenomena (e.g. consumption/embedding of Claim 56 and 89). The information that a person of ordinary skill in the art would need to control such a reaction or mass transfer process is lacking in the specification. (e.g. concentration or partial pressures, kinetic (rate) data or other temperature dependency relationships, diffusivities, and the like.)

f. The existence of working examples

Applicants have provided working examples, but none that are germane to the enablement rejections.

g. The quantity of experimentation needed to make or use the invention based on the content of the disclosure

Art Unit: 1754

Applicants have not disclosed process variables identified as relevant. Accordingly, infinite and undue experimentation is needed to practice the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 55,57-59, 70, and .81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "small" in Claim 56 is a relative term which renders the claim indefinite. The term "small" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

As to Claim 59, the term "concentrator" is at worst indefinite; at best, redundant. Viewed in light of the specification, it is unclear whether Applicants are claiming a specific unit operation (i.e. a "concentrator" . . . if such a thing exists), or claiming its function (i.e. something that "concentrates" one species by separating it from a feed stream to yield one species-rich stream and one species-deficient stream). The latter interpretation has some support in the specification. *See* (S. 18, 17 *et seq.*). In such a case, the claim as drafted is redundant and lacks precision and clarity. One of ordinary skill in the art would recognize that a "gas/solid separations process" would result in product streams that are rich with respect to suspended soot, and deficient with respect to suspended soot. The term "concentrator" confuses the matter.

Claims 55, 57, 58, 70, 81 recite the limitation "gas stream". There is insufficient antecedent basis for this limitation in the claim. With the open ended language (i.e. "comprising")

used in the parent claim, Claim 51, it is unclear whether Applicants are referring to the “effluent gas” described in Claim 51 or some other gas stream.

As to Claim 81, it is unclear whether Applicants are referring to the addition of another substance to the stream (i.e. to provide nucleation sites) or whether the nucleation is to occur, for example, on the interior of a pipe or process equipment. While this broad claim is limited in claim 82, the doctrine of claim differentiation requires a broader interpretation of Claim 81. Accordingly, it is indefinite in light of the specification.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 51, 91, and 122 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,985,232 to Howard, et al.

Claim 51 is drawn to a method of processing fullerenes comprising a combustion step that generates an effluent comprising soot and condensable gases/fullerenes and a gas/solid separation step. Howard ‘232 describes a combustion step to yield soot and condensable gases, followed by a gas/solid separation step. *See* (Howard ‘232 12, 17-27) (Claim 1, describing the process) *and* (Howard ‘232 7, 62-65) (disclosing cyclone separators and electrostatic separation, i.e. gas/solid separation processes). Thus, Howard ‘232 describes or reasonably suggests each and every limitation of Claim 51 and therefore anticipates Claim 51.

Claim 91 is drawn to a method of processing fullerenes comprising a combustion step that generates an effluent comprising soot and condensable gases/fullerenes, a gas/solid

Art Unit: 1754

separation step, and a further step of introducing the condensable gases into a subsequent location for further treatment. Howard '232 is relied upon as discussed in the rejection of Claim 51 for teaching the combustion and gas/solid separation steps. Howard '232 further describes treating condensables by solvent extraction. (Howard 7, 66 to 8, 30). Thus, Howard '232 describes or reasonably suggests each and every limitation of Claim 91 and therefore anticipates Claim 91.

Claim 122 is drawn to a method of processing fullerenes comprising generating a gas stream with suspended soot particles and condensable gases and separating via a gas/solid separations process. The discussion of the rejection of Claim 51 is relied upon as teaching the generation of a gas stream (i.e. the combustion step) and the gas/solid separation step. Thus, Howard '232 describes or reasonably suggests each and every limitation of Claim 122 and therefore anticipates Claim 122.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1754

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 51-55, 59-93, and 122 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,985,232 to Howard, et al. in view of Applicants' admissions.

With respect to the second *Graham v. Deere* inquiry, the instant application varies from the prior art through the addition of a multitude of dependent claims that add limitations obvious to one of ordinary skill in the art. Many of the limitations, discussed below, recognize basic principles of thermodynamics or expand on the teachings of Howard '232 in a manner that is obvious to one of ordinary skill in the art.

As to Claims 51, 91 and 122, the rejection under 35 USC 102(b) is relied upon. As to Claims 52 and 53, drawn to temperature ranges over which to conduct the gas/solid separation, it would have been obvious to perform the separation gas/solid separation at a temperature at which the gas species sought to be separated was still in the gas phase. As to Claims 54 and 55, drawn to operating under conditions for "optimal fullerene stability," it is obvious to optimize result effective variables in a known process. See *In re Boesch*, 205 USPQ 215, 219 (CCPA 1980).

Art Unit: 1754

As to Claim 59, Howard '232 discloses a "concentrator." (Howard '232 7, 59-65). As to Claims 60-65, "conventional collection techniques" are contemplated; filtration, electrostatic separation, and cyclone separation are explicitly taught.. (Howard '232 7, 62-65).

As to Claim 68 and 72-75, 78-80, 83, drawn to condensing fullerenes after the gas/solid separation, it would have been obvious to condense the condensable stream *after* the gas/solid separation process. To condense the stream before would render the separation more difficult if not impossible (i.e. condensing before the solid/gas separation would yield a solid/liquid separation; more likely, a solid-solid separation). As noted above, Howard '232 teaches conventional collection/separation techniques.

As to Claim 69, 76 and 77, drawn to the condensed fullerenes forming as suspended particles of a certain size, it is generally well known and obvious that condensation results in a phase change (i.e. transition from a gas to a suspended particle). As to Claims 70-71 and 81-82 nucleation of fullerenes on suspended particles is obvious over Applicants' admissions and cited authority. *See* (S. 3, 15) ("Transmission electron micrographs show that fullerene structures exist on the periphery of and within soot particles collected from a flame.") (citations omitted).

As to Claim 84, it would be obvious that a phase change (condensation) would occur within over a temperature range in which the two phases exist. As to Claim 85, Howard '232 discloses temperature control through injection of a cold, inert fluid. (Howard '232 7, 61). As to Claim 86, adding a fluid would obviously alter the residence time.<sup>1</sup>

As to Claims 87-88, it would be obvious to separate the fullerenes from other particulate to the greatest extent practicable to enhance commercial opportunities for the fullerenes. As to Claim 90, Howard '232 explicitly discloses the addition of an oxidative species. (Howard '232 11, 14-18).

As to Claim 92-93, Howard '232 discloses condensing gases that are introduced to a subsequent area for further treatment. (Howard '232 at 7,55 to 8, 15).

Claims 57-58 and 66-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,985,232 to Howard, et al. in view of Greico, et al., *Fullerenic carbon in combustion-generated soot*, 38 Carbon 596 (2000).

Claims 57 and 58 are drawn to ranges of residence times that the gas stream should be subjected to before entering the separations process. As Claims 57 and 58 depend upon Claim 51, the preceding discussion of the rejection under 35 USC 103 is relied upon. Howard '232 identifies residence time as a result effective variable. (Howard '232 6, 33-35). Greico, et al. extend this further, noting the change in carbonaceous material collected as a function of residence time. *See* 38 Carbon at 611 ("In general, the quantitative analysis reinforces the observations made qualitatively. There is a detectable change in the carbonaceous materials collected at different vertical positions (or residence times) in the premixed benzene flame studied in this work."). One would be motivated to combine Greico, et al. with Howard '232 to arrive at the desired nanostructure taught by Greico, et al. It would be obvious to optimize the residence times, as they are a result effective variable. *In re Boesch*, 205 USPQ at 219.

Claims 66-67 are drawn to the method of Claim 51 while reciting the additional limitations of the soot particles being of a certain size or collectible on a filter of a certain pore size. This is a corollary of the teachings of Greico, et al., which describes the reaction of soot with PAH to form fullerenes as a function of residence time (which is in turn a function of time and location (i.e. volume and in turn reactor length)). *See* 38 Carbon at 613.

### ***Conclusion***

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<sup>1</sup> Residence time is conventionally defined by those skilled in the art as the quotient of the reactor or vessel size and the volumetric flow rate. The addition of a fluid would change the volumetric flow rate, and in turn, the residence

Art Unit: 1754

Applicants have claimed subject matter that is not enabled by the disclosure. Further, Applicants have not patentably distinguished the application from the inventors prior work.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel C. McCracken whose telephone number is (571) 272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Daniel C. McCracken

DCM



STUART L. HENDRICKSON  
PRIMARY EXAMINER